BORSC, Michal, inz.

Algorithm for z-transform inversion. Automatizace 7 no.9: 248 S '64.

DZANTIYEV, B.G., SHVEDCHIKOV, A.P.; BORSHAGOVSKIY, B.V.

Formation of excited ethyl radicals when hot hydrogen atoms react with ethylene. Dokl. AN SSSR 157 no.3:653-655 Jl '64.
(MIRA 17:7)

1. Institut khimicheskoy fiziki AN SSSR. Predstavleno akademikom V.N. Kondrat'yevym.

BORSHCH, I. M. (ENGR)

BORSHCH, I. M. (ENGR) -- "LOESS (WIND-BLOWN SILT) AS A MINERAL POWDER FOR ASPHALT CONCRETE." SUB 20 MAY 52, MOSCOW MOTOR VEHICLE AND ROAD INST IMENI V. M. MOLOTOV (DISSERTATION FOR THE DEGREE OF CANDIDATE IN TECHNICAL SCIENCE)

SO: VECHERNAYA MOSKVA, JANUARY-DECEMBER 1952

BORSHCH, I.M.

SOV/124-58-4-4914

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 4, p 170 (USSR)

AUTHOR: Borshch [Borshch, I. M.]

TITLE: Determination of Rheologic Properties of Bitumen (Opredeleniye reologicheskikh svoystv bituma); in Ukrainian

PERIODICAL: Nauk. pratsi. Kharkivs'k. in-t inzh. komun. budivnytstva, 1956, Nr 7, pp 93-102

ABSTRACT: The determination of bitumen viscosity by means of the penetration method is criticized. It is proposed to measure the rheologic characteristics of bitumen with the aid of conical "plastomer" designed by'P. A. Rebinder" [probably the Brabender plastograph; Transl. Ed. Note]. Recommendations are advanced for modifying the existing device, i. e., the penetrometer, by replacing the needle with a cone. Bibliography: 11 references.

1. Asphalt--Viscosity

N. I. Malinin

Card 1/1

BORSHCH, I.M., kand.tekhn.nauk

Texture formation processes in asphalt materials. Trudy MADI no.23:37-41 '58. (MIRA 12:1)
(Asphalt)

VOLKOV, Mikhail Ivanovich, prof.; BORSHCH, Ivan Mikhaylovich, dots.; KOROLEV, Igor', Vasil'yevich, dots. Prinimal uchastiye GRUSHKO, I.M., kand. tekhn. nauk; KALERT, A.A., prof., retsenzent; LYSIKHINA, A.I., kand. tekhn. nauk, retsenzent; RUDENSKAYA, I.M., retsenzent; SYUN'I, G.K., retsenzent; KHOMYAKOV, Ye.M., retsenzent; TOMACHINSKIY, V.N., st. prepod., retsenzent; YEGOZOV, V.P., inzh., red.

[Road materials] Dorozhno-stroitel'nye materialy. Moskva, Transport, 1965. 521 p. (MIRA 18:9)

BORZICH, V. S.

BORZICH, V. S. "A study of the role of temperature and moisture conditions in raising young pigs." Min Higher Education Ukrainian SSR. Kiev Veterinary Inst. Min Agriculture Ukrainian SSR. Kiev Sci Res Animal Husbandry Station. Kiev, 1956.
(Dissertation for the Degree of Candidate in Sciences)
Venterinary

So: Knizhnaya Letopis', No. 18, 1956

KOMAROV, N.M.; BORSHCH, M.S.

Hygiene as a basis for the prophylaxis of animal diseases and for increasing their productivity. Veterinariia 42 no.7: 96 Jl '65. (MIRA 18:9)

25(1)

SOV/117-59-6-16/33

AUTHORS: Khmel'nitskiy S.S. and Borshch, S.N., Engineers

TITLE: Machining Cast Iron With Hard Alloy "VK2"

PERIODICAL: Mashinostroitel', 1959, Nr 6, p 31 (USSR)

ABSTRACT: The experience of two Leningrad machine building plants has shown that by using alloy "VK2", instead of "VK8", for machining "Sch 28-48" and "Sch 38-48" cast iron, the speed of machining can be increased by 50 to 100% (see table). Cutters tipped with alloy "VK2" require careful sharpening; lapping of the cutters after sharpening is done with boron carbide. The hardness and wear resistance of the "VK2" alloy is very high. There is 1 table.

Card 1/1

BORSHCH, V.T.

Practices in repairing truck and tractor parts by build-up electric welding. Mekh.sil'.hosp. 13 no.12:6-9 D '62.
(MIRA 16:2)

1. Glavnyy inzh. Novograd-Volinskogo remontnogo zavoda.
(Agricultural machinery—Maintenance and repair)
(Electric welding)

BORSHCH, Yu.I. (Novocherkassk)

Numerical matrix method for calculating beams laying on various kinds of elastic supports. Prikl. mekh. 1 no.8:131-135 '65. (MIRA 18:9)

1. Novocherkasskiy politekhnicheskiy institut.

BORSHCH, Yu.I.

Calculating cylindrical tanks. Prikl. mekh. 1 no.10: 133-137 '65. (MIRA 18:12)

1. Novocherkasskiy politekhnicheskiy institut. Submitted October 23, 1964.

BORSHCH-KOMPANEYETS, V. I., Cand Tech Sci -- (diss) "Analysis of Deformations of ~~Mountain~~ Rocks During Exploitation of the Tom'-~~Usinsk~~ Usa ~~Coalfield~~ Deposit, Determination of the Rational Distribution of Bed Drifts, and Evaluation of Blocks ~~of~~ for Various ~~Destination~~ Purposes." ~~Thesis~~ Mos, 1957. 15 pp (Min of Higher Education USSR, Mos Mining Inst im I. V. Stalin), 120 copies (KL, 47-57, 87)

22

BORSHCH-KOMPANEYETS, V.I., kand.tekhn.nauk; IL'IN, A.I., inzh.

Determination of strains in a massif of hard rocks by the unloading method. Izv. vys. ucheb. zav.; gor. zhur. 5 no.10:53-56 '62.
(MIRA 15:11)

1. Moskovskiy gornyy institut. Rekomendovana kafedroy markshey-derskogo dela i geodezii.
(Rocks—Testing) (Strains and stresses)

BORSHCH-KOMPANEYETS, V.I., aspirants

Studying fracture tectonics at the "A" deposit. Nauch. trudy MGI no.18:161-165 '57. (MIRA 11:9)
(Geology, Structural)

BORSHCH-KOMPANEYETS, V.I., kand.tekhn.nauk

Calculation of pillars under the conditions at the Tom'-Usa deposit. Izv.vys.ucheb.zav.; gor.zhur. no.2:65-67 '60. (MIRA 14:5)

1. Moskovskiy gornyy institut.
(Mining engineering)

BORSHCH-KOMPANIYETS, V. I., inzh.; GUDKOV, V. M., inzh.;
D'YAKOVSKIY, V. B., inzh.

Effect of some factors on the stability of untouched blocks of ore. Izv. vys. ucheb. zav.; gor. zhur. no.10:78-84 '61. (MIRA 15:10)

1. Moskovskiy gornyy institut imeni I. V. Stalina. Rekomendovana kafedroy marksheyderskogo dela.

(Mining engineering)

LUSHCHITSKIY, M.A., polkovnik meditsinskoy sluzhby; BORSHCHAGOVSKIY, M.L.

Traumatic shock and cerebrocranial lesions. Voen.-med. zhur. no.7: 31-34 Jl '61. (MIRA 15:1)
(BRAIN--WOUNDS AND INJURIES) (SHOCK)

UGRYUMOV, V.M., prof.; BORSHCHAGOVSKIY, M.L.; KAPUSTIN, S.M.; RAYEVSKIY, V.P.

Problem of preventing terminal states during surgery on patients with brain lesions. Vop.neirokhir. 28 no.4:1-6 Jl-Ag '64. (MIRA 18:3)

1. Leningradskiy nauchno-issledovatel'skiy neyrokhirurgicheskiy institut imeni A.L.Polenova (dir. - prof. V.M.Ugryumov).

LUSHCHITSKIY, M.A.; BORSHCHAGOVSKIY, M.L.

Spinal punctures in the diagnosis and treatment of closed craniocerebral injuries. Vop. psikh. i nevr. no.9:353-357 '62. (MIRA 17:1)

1. Kafedra gospital'noy khirurgii Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.

BORSHCHAGOVSKIY, M.L.

Diagnostic and prognostic value of the corneopterygoid reflex. Vrach. delo no.10:143-144 O '63. (MIRA 17:2)

1. Leningradskiy nauchno-issledovatel'skiy neyrokhirurgicheskiy institut imeni prof. A.L. Polenova i neyrokhirurgicheskoye otdeleniye bol'nitsy "V pamyat' 25 Oktyabrya".

BORSHCHAGOVSKIY, M.L.

Characteristics of the use of neuroplegic preparations in patients with closed craniocerebral injuries. Vop. psikh. i nevr. no.9:365-376 '62. (MIRA 17:1)

BORSHCHENKO, I.

ANTROPOV, N.; BORSHCHENKO, I.

[Fiftieth anniversary of U.S.S.R. trade unions; a short history]
Piatidesyatiletie profsoiuzov SSSR; kratkii istoricheskii ocherk.
[Moskva] Izd-vo VTsSPS Profizdat, 1957. 126 p. (MIRA 11:6)
(Trade unions)

BORSHCHENKO, I.

[Origin of trade unions and their activities, 1905-1917] Vozniknovenie profsoiuzov i ikh deiatel'nost' v 1905-1917 godakh. Moskva, Profizdat, 1959. 23 p. (MIRA 14:12)
(Trade unions)

BORSHCHENKO, N.K.

Flexure of three-layer orthotropic beams of asymmetric structure. Sbor. nauch. trud. Dnepr. inzh.-stroi. inst. no.31: 75-82 '63 (MIRA 18:1)

BORSHCHENKO, V.B.

Place of dermatologists in the treatment of patients with thermal burns. Vest.derm.i ven. 35 no.1:25-30 Ja '61.
(MIRA 14:3)

1. Iz kafedry kozhnykh i venericheskikh bolezney (nach. - chlen-korrespondent AMN SSSR zasluzhennyy deyatel' nauki RSFSR prof. S.T. Pavlov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.

(BURNS AND SCALDS)

L 19372-66 EWT(m)/EWP(j) RM

ACCESSION NR: AP5015461 UR/0318/64/000/008/0022/0023

AUTHOR: Sharipov, A. Kh.; Golovanenko, B. I.; Ioffe, I.I.; Borshchenko, V.P.; Fatkullina, N.S.

TITLE: Preparation of phthalic anhydride by oxidation of the naphthalene fraction of crude oils

SOURCE: Neftepererabotka i neftekhimiya, no. 8, 1964, 22-23

TOPIC TAGS: crude petroleum, naphthalene, oxidation

Abstract: Noting that in the USA the amount of crude-oil naphthalene is almost as large as that produced from coke, the authors describe their studies of the vapor-phase catalytic oxidation of the crude-oil naphthalene fraction yielding phthalic anhydride. They show that, relative to the naphthalene content, the phthalic-anhydride yield may reach 94% of the theoretical. However, this is achieved at the cost of a catalyst-productivity decrease of 15-20%. Orig. art. has 2 tables.

ASSOCIATION: VNIIneftekhim, Leningrad; NIIneftekhim, Ufa

SUBMITTED: 00 ENCL: 00 SUB CODE: FD, GC

NO REF SOV: 002 OTHER: 002 JPRS

Card 1/1

L 14250-66 FSS-2/EWT(1)/FS(v)-3/T SCTB DD/RD

ACC NR: AT6003852 SOURCE CODE: UR/2865/65/004/000/0180/0187

AUTHOR: Popov, N. G.; Krichagin, V. I.; Borshchenko, V. V.; Savinich F. K. 56 50

ORG: none

TITLE: Hygienic investigation of cosmonaut clothing designed for wear in a small space cabin under shirtsleeve microclimate conditions

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 180-187

TOPIC TAGS: cosmonaut hygiene, space suit, spacecraft capsule environment, space physiology, skin physiology, hygiene

ABSTRACT: Contemporary spacesuits worn continuously inflict considerable discomfort and inconvenience on the wearer. This has been one of the factors prompting development of shirtsleeve cabin atmospheres permitting the wearing of light, porous clothing.

The most important hygienic function of clothing is keeping the skin free of dirt. In space, where the various kinds of dust ordinarily present in the environment are absent, the main contaminants of skin and clothing are the products of human vital activity (skin gland secretions, sloughed epidermis, falling hair, and particles of urine and feces).

Card 1/3

ACC NR: AT6003852 O

Weight penalties make the carrying of changes of underwear or the cleaning of underwear in flight impracticable. Therefore, ways must be found to enhance the skin cleaning capability of underwear.

Knitted fabric has a number of advantages: 1) better fit, 2) economy of space in packing, 3) convenience in placing physiological sensors. For shirtsleeve cabins, knitted sportswear was found best. Chamois slippers were worn as footgear.

Samples of the clothing were worn in thermochamber, cabin-mockup, and Vostok flight tests. In order to evaluate the skin-cleaning capability of the clothing, methods were devised to measure the degree of soiling by analyzing bath and wash water.

The clothing was worn in 30-day tests without washing, and the condition of the skin under the clothing was determined by clinical and laboratory methods. Skin condition is stated to have remained wholly satisfactory. Hyperkeratosis, scaling, some folliculitis simplex, isolated boils, dermatitis, and acne vulgaris were observed, but none of these conditions interfered with the work capacity of the subjects or prevented completion of the experimental program.

L 14250-66
ACC NR: AT6003852

6

The knitted underwear developed by such methods was worn by Gagarin, Titov, Nikolayev, Popovich, Bykovskiy, and Tereshkova on the first spaceflights. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 004

FW
Card 3/3

ACC NR: AT6036658 SOURCE CODE: UR/0000/66/000/000/0287/0287

AUTHOR: Nefedov, Yu. G.; Zaloguyev, S. N.; Shilov, V. M.; Borshchenko, V. V.

ORG: none

TITLE: Problem of designing a habitable spacecraft cabin environment [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 287

TOPIC TAGS: automicroflora, closed ecological system, life support system, space cabin habitability, space hygiene, immunology

ABSTRACT:

Prolonged spaceflights require that man remain in a closed enviroment with an altered medium under the influence of a series of unfavorable space-flight factors. In sealed—chamber experiments with human subjects, during which certain spaceflight factors were simulated along with various work and rest schedules, in addition to physiological, psychological, and clinical observations, special attention was given to the study of the micro-flora of the medium, and the automicroflora and immunological reactivity of the human organism.

Card 1/3

Experiments with humans in sealed chambers have indicated that as experiments increase in duration, there is an increase in general bacteriological contamination of the surrounding medium in the chamber and that the number of pathogenic microorganisms increases significantly.

Studies of the processes of interchange of microorganisms between humans are of particular interest. Results of preliminary investigations based on phagocytic and serum studies have indicated an exchange of microorganisms between humans under these conditions.

Along with bacterial contamination of the environment, definite shifts in the immunological reactivity of the organism were noted. These shifts are characterized by disruption of the bactericidal function of the skin surfaces, depression of the phagocytic activity of leukocytes, and a reduction in the lysozyme content of the saliva.

The observed changes call attention to the need for finding methods of preventing the occurrence of infectious and autoinfectious diseases, which can arise as a result of the depression of immunological reactivity of the organism, changes in environmental microflora, and disruption of

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206520016-9"

ACC NR: AT6036658

the normal microbial biocenosis in cosmonauts.

The problem of biological compatibility of microflora in relation to individual differences of space crew members deserves consideration.

[W. A. No. 22; ATD Report 66-116]

SUB CODE: 06,22 / SUBM DATE: 00May66

Card 3/3

L 63109-65 EWT(d)/EWT(l)/EWT(m)/EEC(k)-2/EEC-4/EWP(l) IJP(c) JD

ACCESSION NR: AR5019163 UR/0272/65/000/007/0156/0156

389:621.317.44

22

B

SOURCE: Ref. zh. Metrologiya i izmeritel'naya tekhnika. Otdel'nyy vypusk, Abs. 7.32.1097

AUTHOR: Borshchenko, Ye. I.

TITLE: A magnetic probe for simultaneous recording of two orthogonal components of a magnetic field 21

CITED SOURCE: Tr. Leningr. in-t aviats. priborostr., vyp. 43, 1964, 58-62

TOPIC TAGS: magnetic field measurement, magnetic probe, orthogonal field component, Hall detector

TRANSLATION: Described is a probe representing an AC galvanomagnetic detector of Hall's emf. The detector is mounted on a base made from material with high magnetic permeability. This makes it possible to utilize modulation of the magnetic flux because the action of a detector's driving variable field on the base. Sensitivity of the probe to the axial component of the field at optimal current comprised $0.647 \cdot 10^{-6}$ v·a^{-1}·m ($\approx$ 50 μ v·e^{-1}). Bibl. with 2 titles; 3

Card 1/2

L 63109-65
ACCESSION NR: AR5019163

illustrations. L. Ivanova

SUB CODE: EM ENCL: 00

Card 2/2

L 7655-66 EWT(d)/EWP(c)/EWP(v)/T/EWP(k)/EWP(h)/EWP(l)/ETC(m) WW
ACC NR: AP5025045 SOURCE CODE: UR/0286/65/000/016/0087/0087

AUTHORS: Borshchenko, Ye. I.; Kotenko, G. I.; Pogodin, V. I. 54

ORG: none B

TITLE: Method for contactless measurement of the roughness of a conducting surface and a device for its accomplishment. Class 42, No. 173959

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 87

TOPIC TAGS: magnetic circuit, metal surface, Hall generator, galvanometer, galvanometry, magnetic field

ABSTRACT: This Author Certificate presents a method for contactless measurement of the roughness of a conducting surface according to the total magnetic flux passing through a galvanomagnetic detector. To increase the sensitivity of the integral measurement, an electric current is passed through the part. The magnetic field of the current interacts with the magnetic field of the detector, and the monitored paramater is determined according to the resulting value of the Hall emf. The device for measuring the roughness of a conducting surface, including small linear displacements of the surface, contains a magnetic circuit with a ferrite junction placed in the gap and a galvanomagnetic detector (see Fig. 1).

Card 1/3 UDC: 531.717.8:621.3

L 7655-66

ACC NR: AP5025045

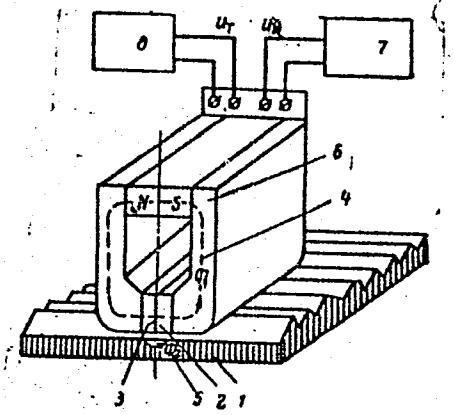

Fig. 1. 1- investigated part; 2- ferrite backings; 3- Hall emf detector; 4- magnetic rod determining initial value of Hall emf; 5- magnetic flux determining surface roughness; 6- magnetic circuit of device; 7- recording device; 8- supply source of Hall detector

To increase the sensitivity, the ferrite junction is in the form of flat backings, between which the galvanomagnetic detector is mounted. The magnetic

Card 2/3

L 7655-66

ACC NR: AP5025045

permeability of the ferrite backings is less than that of the magnetic circuit and the part material. Orig. art. has: 1 diagram.

SUB CODE: 14,20/ SUBM DATE: 29Apr63

Card 3/3

ACC NR: AR7004304 SOURCE CODE: UR/0271/66/000/011/A019/A019

AUTHOR: Borshchenko, Ye. I.; Kotenko, G. I.

TITLE: Analog elements designed with galvanomagnetic sensors

SOURCE: Ref. zh. Avtomat. telemekh. i vychisl. tekhn., Abs. 11A147

REF SOURCE: Tr. Leningr. in-t aviats. priborostr., vyp. 46, 1966, 112-118

TOPIC TAGS: analog element, Hall generator, Gauss generator, galvanomagnetic effect

ABSTRACT: The problem is considered of using the galvanomagnetic Hall and Gauss (magnetoresistive) generators for building analog elements intended for simplest mathematical operations. By combining series and opposition connections of the generators, the operation of algebraic summation becomes possible. A galvanomagnetic bridge-type multiplier designed with Gaussian generators is considered in detail, and results of its testing are reported. The galvanomagnetic analog elements can deliver stable operation indefinitely and can be designed as miniature standardized modules. Possible applications of such analog elements are listed. Five figures.
T. R. [Translation of abstract]

SUB CODE: 09, 20

Card 1/1 UDC: 621.398.694:621.376

PISARENKO, G.A.; RADYA, V.S.; GEROTSKIY, V.A.; BLIKANOV, A.A.; MOKRONOSOV, Ye. D.; YEFREMOV, P.N.; BORSHCHER, L.B.; YEFIMOV, I.Z.; MYKOL'NIKOV, A.A.; BATALOV, A.N.; TSEPOVA, M.N.

Casting magnesium cast iron into a chill with a metal core. Stal' 24 no.7:607-610 Jl '64. (MIRA 18:1)

1. Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov, Lys'venskiy i Severskiy metallurgicheskiye zavody i Nizhne-Tagil'skiy metallurgicheskiy kombinat.

BORSHCHEV, A.; SHERIKH, M.

Planning working capital norms for the industry of regional economic councils. Fin.SSSR 20 no.4:63-64 Ap '59. (MIRA 12:6)

(Finance)

BORSHCHEV, A.; SHERIKH, M.

Our suggestions. Fin.SSSR 20 no.9:46-47 S '59.
(MIRA 12:12)

(Suggestion systems)

ROGOVTSEV, Sergey Yefimovich; BORSHCHEV, A., red.; SHATROVA, T., red. izd-va; TELEGINA, T., tekhn. red.

[Financial planning in an industrial enterprise] Finansovoe planirovanie na promyshlennom predpriiatii. Moskva, Gosfinizdat, 1961. 171 p. (MIRA 14:11)

(Moscow Province—Finance)

ZUYEV, V.P.; GILYAZETDINOV, L.P.; GYUL'MISARYAN, T.G.; BERNSHTEYN, I.D.; SAULINA, V.V.; MAGARIL, R.Z.; SEREBRYAKOV, K.F.; BORSHCHEV, B.S.

Extracts of catalytic gas oils as raw stock for the production of furnace black. Khim. i tekh. topl. i masel 9 no.12:6-11 D '64. (MIRA 18:2)

1. Nauchno-issledovatel'skiy institut shinnoy promyshlennosti, Omskiy naucho-issledovatel'skiy konstruktorskogo-tekhnologicheskiy institut shinnoy promyshlennosti, Omskiy sazhevyy zavod i Kudinovskiy sazhevyy zavod.

BORSHCHEV, B. V.

USSR/Engineering
Detection, X-Ray
X-Rays - Measurements

Feb 48

"Simple Method of Determining the Depth of Defects Revealed by X-Raying," Sh. S. Manevich, B. V. Borshchev, 2 pp

"Zavod Lab" Vol XIV, No 2 202-203

Existing methods are complicated and little used. Diagrams show authors' simple method. Advantage is that it can be used by comparatively unskilled personnel. Only special equipment required is plexiglas rule with lead scale markings.

4/49T37

[redacted]

BORSHCHEV, Ivan Kuz'mich; SUKHOVA, G.M., red.; RUBINOVA, L.Ye., tekhn.red.

[Planning collective-farm production] Planirovanie kolkhoznogo proizvodstva. Tomsk, Tomskoe knizhnoe izd-vo, 1961. 23 p. (MIRA 14:6)

(Collective farms—Management)

BORSHCHEV, Konstantin Gavrilovich 1897-1962 1964

DECEASED

Diseases of Ear, Throat, and Nose.

S-3

USSR/Human and Animal Morphology. Nervous System. Peripheral Nervous System

Abs Jour: Ref Zhur - Biol., No 19, 1958, 88423

Author : Borshchev, K. K.

Inst : Ivanovskiy Medical Institute

Title : Morphological Changes in the Peripheral Nervous System of the Palatine Tonsils in Dogs, Following Tonsillotomy

Orig Pub: Sb. nauchn. tr. Ivanovsk. med. in-ta, 1957, vyp. 12, 370-375

Abstract: A right-sided tonsillotomy (RT) was carried out on 30 dogs aged 6 months-3 years, and within 30 min.-6 months a left-sided one was done; the palatine tonsils (PT) were studied by the Bil'-shovskiy-Gross impregnation method. Acute inflammation developed in the tissues of the PT

Card 1/3

USSR/Human and Animal Morphology. Nervous System. S-3
Peripheral Nervous System

Abs Jour: Ref Zhur - Biol., No 19, 1958, 88423

Abstract: within 30-60 minutes following RT; the nerve fibers and endings could not be visualized. The inflammatory reaction quieted down within 6 hours following RT, and disappeared completely within 10-15 days. Up until the sixth hour after RT, evidence of irritation of the right PT, and degenerative changes in the fibers were seen during the period from 6 hours to 5 days. The process of degeneration involved a great part of the nerve elements; this process began simultaneously in the traumatized area and in the capsule, spreading later to the diffuse lymphoid tissue and follicles. Manifestation of regeneration of the nerve elements was observed within 10-15 days following RT. Reflex changes of nerve fibers were occasionally ob-

Card 2/3

USSR/Human and Animal Morphology. Nervous System. S-3
Peripheral Nervous System.

Abs Jour: Ref Zhur - Biol., No 19, 1958, 88423

Abstract: served in the left PT following RT. The ob-
served changes in the PT occasionally led to
hypernervia and to a modification of the reflex-
ogenic areas of the PT.

Card 3/3

USSR/Human and Animal Morphology. Nervous System. Peri- S-3
pheral Nervous System

Abs Jour: Ref Zhur - Biol., No 19, 1958, 88422

Author : Borshchev, K. K.

Inst : Ivanovskiy Medical Institute

Title : Morphological Changes in the Peripheral Nervous System of the Palatine Tonsils of Dogs Following Intratonsillar Injections of Formaldehyde

Orig Pub: Sb. nauchm. tr. Ivanovsk. med. in-ta, 1957, vyp. 12, 376-379

Abstract: 1 ml. doses of 0.25% solution of formaldehyde were injected into the palatine tonsil (PT) of 26 live dogs, and within 30 min.- 6 months the PT were removed and studied histologically. It was demonstrated that during the first hours after the injection, signs of irritation of the nervous fibers appeared

Card 1/2

USSR/Human and Animal Morphology. Nervous System. Peri- S-3
pheral Nervous System

Abs Jour: Ref Zhur - Biol., No 19, 1958, 88422

Abstract: (varicose thickening, fungiform outgrowth, drop-like exudation of neuro-protoplasma). Within 2-15 days, part of the nervous elements of the PT was found to be in various stages of degeneration. After 4-6 months there were no signs of breakdown of nerve fibers. Thin fibers were found with occasional varicose thickening, distributed in the capsule and in the diffuse lymphoid tissue.

Card 2/2

B[illegible]EV, K.K., Cand Med Sci--(diss) "Morphological changes in the peripheral nervous system of the palatal tonsils after galvano-cauterization, tonsillectomy, and intratonsillar injections of a ½ percent solution of formalin." Ivanovo, 1958. 16 pp (Ivanovo State Med Inst), 200 copies (KL,31-58, 106)

-91-

BORSHCHEV, N.V., inzhener.

Efficient method for setting and testing fly cranks. Zhel. dor. transp. 37 no.10:69-70 O '55. (MLRA 9:1)

1.Stantsiya Kamenolomni.
(Locomotives--Repairs)

BORSHCHEV, O.I.

Dynamometer for determining stresses in strands and cables.
Sbor. trud. LIIZHT no.229:89-91 '64. (MIRA 18:8)

RZHEKHIN, V.P., kand.tekhn.nauk; BELOVA, A.B., inzh.; TROS'KO, U.I., inzh.; KONEVA, Ya.A., inzh.; BORSHCHEV, S.T., inzh.; VLASOV, V.I., inzh.; ROZENSHTEYN, G.V., inzh.; TADZHIBAYEV, G.T., inzh.

Separation of gossypol from prepassed oils and micelles with anthranilic acid. Masl. - zhir. prom. 27 no.8:26-29 Ag '61. (MIRA 14:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zhirov (for Rzhekhin, Belova). 2. Sredneaziatskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta zhirov (for Tros'ko, Koneva). 3. Kokandskiy maslozhirovoy kombinat (for Borshchev, Vlasov, Rozenshteyn, Tadzhibayev).

(Gossypol) (Anthranilic acid) (Oils and fats)

BORSHCHEV, V.B.; VLEDUTS, G.E.; FINN, V.K.

Concerning the algorithm of the conversion of structural formulas of organic chemistry to a canonized form. Soob. LEM AN SSSR no.1:99-171 '60. (MIRA 15:2)
(Chemistry, Organic)
(Information theory)

S/044/63/000/002/040/050
A060/A126

AUTHORS: Il'in, V.V., Borshchev, V.B., Rokhlin, F.Z.

TITLE: Can a machine think? (Survey of some viewpoints). (In order of discussion)

PERIODICAL: Referativnyy zhurnal, Mathematika, no. 2, 1963, 44, abstract 2V213 (Tr. Kazansk. aviats. in-ta, 1961, 1961, no. 65, 65 - 80)

TEXT: In the authors' opinion, among a number of philosophical problems of cybernetics under discussion one problem which was raised and given differing solutions by many cyberneticians requires further discussion. "The problem deals with the possibility or impossibility of carrying out an analogy between a computer and the brain to the point of admission (or negation) that there arises a property in a computer identical or close to consciousness or, more clearly, to thought. Can a machine think? - This clear question produces two mutually exclusive viewpoints: yes or no". The authors analyze the basic arguments in support of the impossibility in principle of designing a thinking machine: the algorithmic undeterminability of certain problems, the nonreducibility of think-

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Can a machine think? ....

S/044/63/000/002/040/050
A060/A126

ing, as a special form of motion of matter, to the physical form of motion of matter (to a lower form); the impossibility of simulating the subjective psychological universe of man; in the authors' opinion none of these arguments can be admitted as conclusive. "On the basis of the absence of contradiction to the idea of the possibility of designing a thinking machine by any laws of science or philosophy, this idea is admissible as a fully fledged scientific hypothesis. Future experience will solve the question of the truth of this hypothesis". In conclusion, the authors develop the thought that "in a whole number of works in the last few years an attempt is present to comprehend the changes introduced in to the content of attributes of matter by the science of the twentieth century. .. the so-called ontological nongeocentrism". Carrying out an analogy between quantum theory, the theory of relativity, the authors consider that cybernetics apparently is the science which gives us the first foundation for discovering the elements of geocentrism in our consciousness and knowledge", since, "by deciding in the affirmative the problem of the possibility of creating a thinking machine we thus admit that there can exist not just a unique highly organized material system (the brain) in which consciousness arose ... that other forms of highly organized material systems in which consciousness arises are possible and exist."

Card 2/2 [Abstracter's note: Complete translation] A.M. Kondratov

S/194/62/000/006/109/232
D256/D308

AUTHORS: Borshchev, V.B., Kaminir, L.B., Larionov, M.G., Litinskaya, L.L., Orlovskiy, G.N., Rokhlin, F.Z., Urbakh, V.Yu., and Frank, G.M.

TITLE: Automatic analyzer of biological structures AB -1 (AB-1)

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1962, abstract 6-5-17 i (Biofizika, 1961, 6, no. 6, 745-747)

TEXT: Large number of measurements are required to obtain reliable information concerning the mean values of biological parameters. A description is given of AB-1 type automatic analyzer of biol. structures capable of producing the mean arithm. value of the area of 1024 micro-objects with an accuracy not less than ± 7 % at a speed of operation of ~100 micro-objects per second. The image of a micro-object is scanned by lines. The mean value of the area is obtained from the known spacing of the scans, the length of the chord of the object and the number of counted objects. The length of the

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chord is converted into a train of standard pulses; their number being proportional to the length. The number of counted objects is obtained by comparing the signals from the scanned line with the delayed signal from the preceding line: if the signal from the preceding line is the only one present, there being no signal from the scanned line, then it is understood that the scanning of the object is completed and a signal is sent to the counter. Nipkow-disk scanning with a simultaneous shifting of the apparatus was employed in the electro-optical converter. The flux of light which depends upon the brightness of the object, falls onto a photomultiplier tube, the output pulses being fed into the counter after amplification and shaping. Results of tests of the analyzer are presented, carried out with measurements of mean radius of erythrocytes. 8 references. [Abstracter's note: Complete translation.]

Card 2/2

BORSHCHEV, V.B.; ROKHLIN, F.Z.

Algorithm of coding a matrix while preserving the distinction of its lines. NTI no.11:22-24 '63. (MIRA 17:2)

BORSHCHEV, V.B.; SHREYDER, Yu.A.

Nonalgorithmic languages of programming. NTI no.12:17-21 '64.
(MIRA 18:3)

L 5054-66 EWT(d)/T IJP(c)

ACCESSION NR: AP5024539 UR/0378/65/000/004/0045/0054
519.8

40
B

AUTHOR: Borshchev, V. B.; Shreyder, Yu. A.

TITLE: Algorithms, programming languages, and disposition

SOURCE: Kibernetika, no. 4, 1965, 45-54

TOPIC TAGS: algorithm, algorithmic language, computer language, computer programming

ABSTRACT: The use of computers for the solution of problems makes a correct description of the methods of solutions necessary. The description of the problem and the method of solution is carried out on one of the programming languages. The present authors present a formal definition of a generalized algorithm concept established in conjunction with the known concepts of evaluation. The class of formal problem descriptions includes the ordinary algorithm definitions as well as certain nonalgorithmic descriptions. The latter contain, in addition to orders carrying out the transformation of the text according to a certain rule, authorizations for other transformations as well. Such schemes for problem description are termed dispositions. During the development of the

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L 5054-66
ACCESSION NR: AP5024539

disposition definition the authors utilize explicitly only the modality of the authorizations. The new approach is illustrated by two examples. Orig. art. has: 13 formulas, 3 figures, and 1 table.

ASSOCIATION: none

SUBMITTED: 17Feb65 ENCL: 00 SUB CODE: DP

NO REF SOV: 010 OTHER: 000

Card 2/2

L 32903-65 EWT(d)/EWP(1)/EED-2 Po-4/Pq-4/Pr-4/Ps-4 IJP(c) BB/GG/GS
ACCESSION NR: AT5004141 S/0000/64/000/000/0051/0054

AUTHOR: Borshchev, V.B.; Rokhlin, F.Z.

43
871

TITLE: One method of investigating programs

SOURCE: AN SSSR. Institut nauchnoy informatsii. Informatsionnyye sistemy (Information systems). Moscow, 1964, 51-54

160

TOPIC TAGS: computer programming, program testing, command statistics, machine time, investigator program, mode shift

ABSTRACT: The authors note that when programming complex problems, the solution of which requires a great deal of machine time, it is frequently important to know how long a particular block (unit) of the program is in operation, how frequently certain blocks of the program are interrogated, how frequently specific commands are carried out (command statistics), etc. In other words, the problem of "program investigation" comes into being. One method of such "program investigation" is considered in this article. The program to be investigated is represented in the form of a graph. Various functions are arbitrarily assigned to the apices and arcs of the graph, reflecting similar program functions. The concept of the operating mode of the program is introduced. The authors refer to certain program commands as "mode shift commands" (these are the initial commands of the

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L 32903-65
ACCESSION NR: AT5004141

program, for example). A method is explained, whereby it is possible to construct what the authors call an "investigator-program" which will provide an answer to the question of how long the program under investigation operates in one or another "mode" when solving a given problem. A graph is plotted for this purpose, in which the arcs and apices are made to satisfy certain predetermined requirements. The "investigator-program" is shown to consist of a number of "sub-programs" which are of two types. These are described in the article. The authors report that an "investigator-program", compiled according to the method described in this article, was used to investigate a program for the retrieval of a sub-graph within a graph. A so-called "universal" program can also be constructed, the basic data for such a program being the program to be investigated and the mode-shift commands, noted on it, together with an indication of the numbers of the modes which they assign. In an apperdix to the article proper there is a brief description of an algorithm which indicates, for any graph, the minimum number of arcs necessary for the compilation of the "investigator-program".

ASSOCIATION: none

SUBMITTED: 08Oct64 ENCL: 00 SUB CODE: DP

NO REF SOV: 001 OTHER: 001

Card 2/2

L 32901-65 EWT(d)/TDB(JJ)/EXT/EWP(1)/EED-2 Po-4/Pq-4/Pg-4/Pk-4 IJP(c)
BB/GS/GG

ACCESSION NR: AT5004142 S/0000/64/000/000/0055/0064

AUTHOR: Borshchev, V.B.; Rokhlin, F.Z.

47
B+1

TITLE: Recording a graph in the memory of a computer for a retrieval algorithm of a partial sub-graph within a graph

SOURCE: AN SSSR. Institut nauchnoy informatsii. Informatsionnyye sistemy (Information systems). Moscow, 1964, 55-64

TOPIC TAGS: computer program, computer memory, information retrieval, retrieval algorithm, chemical coding, machine translation, graph recording, structural formula

16C

ABSTRACT: The authors note that the need to retrieve a partial sub-graph G_2 within a graph G_1 is encountered in chemical information problems, in certain problems involving machine translation, and in other areas as well. Familiar retrieval algorithms reduce themselves, in the final analysis, to a sampling of the insertions of graph G_2 in graph G_1. Retrieval speed depends essentially on the method used for recording the graphs in the memory of the computer. In the present article, a system for writing the G_1 graph in the memory of the computer is described, which permits accelerated retrieval rates by reducing the sampling. In their discussion of this problem, the authors limit themselves only to graphs having "marked" apices and sides (such a graph is one in which only one

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L 32901-65
ACCESSION NR: AT5004142

symbol or "mark" of a certain set is assigned to the apex and only one to each side). In the authors' understanding, graph G_2 is a sub-graph of graph G_1 if a set of apices and a set of sides of graph G_2 are, correspondingly, a sub-set of apices and a sub-set of sides of graph G_1. In order to make clear the advantages of the proposed method of recording graph G_1, an algorithm is described, in general terms, for the retrieval of the sub-graph within the graph. This algorithm is applicable both to bound as well as unbound graphs G_1 and G_2. An explanation is given of the actual method of writing the derived G_1' graph in the machine memory. The authors claim that, with the writing method advanced in this article, the machine memory can be used in a rather economical fashion. Thus, they state, for example, that less than 1% of the memory cells of the Ural-2 computer were left unoccupied when 9 chemical graphs were written for that machine. The graph-writing system discussed in this paper was used to record the structural formula of a chemical compound (chemical graph) in a fragment retrieval problem. Results of this experiment and of an experimental verification of the system (on a Ural-2 computer) are discussed and pertinent diagramatic and tabular information is presented. Orig. art. has: 2 tables and 19 chemical formulas.

ASSOCIATION: none

SUBMITTED: 08Oct64 ENCL: 00 SUB CODE: DP, OC

NO REF SOV: 003 OTHER: 000

Card 2/2

L 20094-65 EWT(d)/BXT/EED-2/EWP(1) Po-4/Pq-4/Pg-4/Pk-4/Pb-4 IJP(c)/ASD(a)-5/AMD/AFMD(p)/AFETR/AFTC(b)/RAEM(d)/RAEM(i)/ESD(dp)/ESD(c)/ESD(t) BB/GG
ACCESSION NR: AP4049561 S/0315/64/000/001/0047/0049

AUTHOR: Borshchev, V. B.; Rokhlin, F. Z.

TITLE: A method of aliphabetic condensation of words. Part I. An algorithm for word curtailment using the method of alphabetic condensation

SOURCE: Nauchno-tekhnicheskaya informatsiya, no. 1, 1964, 47-49

TOPIC TAGS: machine translation, algorithm, information theory, coding theory, word condensation

ABSTRACT: The paper describes a method for condensing words, by means of which a given word is replaced by a binary code. This first part deals with the preliminary treatment of the words of a given list, which words, within some content, are to be coded. An algorithm is presented for treatment of a list of words, the result being the shortening of the words in the list. With the aid of a Ural-2 high-speed digital computer, the algorithm works sufficiently quickly to allow its use with long lists of words. Two variations of the algorithm are presented for ease in implentation. Orig. art. has: 4 formulas.

ASSOCIATION: none

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L 20094-65
ACCESSION NR: AP4043561

SUBMITTED: 16Nov63 ENCL: 00 SUB CODE: DP

NO REF SOV: 005 OTHER: 000

Card 2/2

BORSHCHEV, V.B.

Morphological model of a language and morphological analysis. Part 2: Sorting out morphs by class and the algorithm of the compilation of tables of states. NTI no.12:49-54 '65.
(MIRA 19:1)

BORSHCHEV, V.B.; SHREYDER, Yu.A.

Algorithms, programming languages, and dispositions. Kibernetika no. 4:45-54 Jl-Ag '65. (MIRA 18:12)

1. Submitted February 17, 1965.

BORSHCHEV, V.S.

Installing electric line poles. Transp. stroi. 8 no.11:8 N '58.
(MIRA 12:1)
(Electric lines--Poles)

PHASE I BOOK EXPLOITATION SOV/5084

International Conference on the Peaceful Uses of Atomic Energy. 2d, Geneva, 1958.

Doklady sovetskikh uchenykh. [t.4] Khimiya radioelementov i radiatsionnykh prevrashcheniy (Reports of Soviet Scientists. v. 4.: Chemistry of Radio-elements and Radiation Transformations) Moscow, Atomizdat, 1959. 323 p. 8,000 copies printed. (Series: Its: Trudy)

Ed. (Title page): A. P. Vinogradov, Academician; Ed.: V. I. Labaznov; Tech. Ed.: Ye. I. Mazel'.

PURPOSE: This collection of articles is intended for scientists and engineers interested in the applications of radioactive materials in science and industry.

COVERAGE: The book contains 26 separate studies concerning various aspects of the chemistry of certain radioactive elements and the processes of radiation effect on matter. These reports discuss present-day methods of reprocessing irradiated nuclear fuel, research in the chemistry of mercury, thorium, uranium, plutonium, and americium, problems related to the sorption and burying of radioactive wastes, the radiolysis of aqueous solutions and of organic compounds, the mechanism of polymer chain grafting, and the effect of radiation on natural and synthetic rubbers. V. N. Pruzakov edited the present volume. Most of the reports are accompanied by references. Contributors to individual investigations are mentioned in annotations to the Table of Contents.

Alenchikova, I. F., L. L. Zaytseva, L. V. Lipis, V. V. Fomin, and N. T. Chebotarev. Production and Properties of Several Binary Fluorides of Tetravalent Plutonium (Report No. 2208) 137

Yakovlev, G. N., and V. N. Kosyakov. Investigations on the Chemistry of Americium (Report No. 2127)
[D. S. Gorenko-Germanov is mentioned as having supplied the material for the second section of this study.] 147

Zvyagintsev, O. Ye., V. D. Nikol'skiy, B. M. Starostin, A. Kurbanov, and V. S. Shmidt. Contribution to the Chemistry of Radioactive Ruthenium (Report No. 2143) 166

Spitsyn, V. I., V. D. Balukova, A. F. Naumova, V. V. Gromov, F. M. Spiridonov, Ye. M. Vetrov, and G. I. Grafov. Study of the Migration of Radioactive Elements in Soils (Report No. 2207) 174

Voznesenskiy, S. A., G. A. Sereda, P. F. Dolgikh, and L. I. Baskov. Detoxication of Low-Salt-Content and Low-Activity Waste Waters From Radiochemical Plants (Report No. 2024) 189

Bol'shakov, K. A., A. T. Avdonin, V. T. Borshchev, F. V. Rauzen, and others. Experimental Industrial Plant for Purification of Laboratory Waste Waters Contaminated With Radioactive Elements (Report No. 2025) 194

Bogorov, V. G., and Ye. M. Kreps. On the Possibility of Burying Radioactive Wastes in Deep-Water Depressions of the Ocean (Report No. 2058) 204

Proskurnin, M. A., and Ya. M. Kolotyrkin. Investigations Into the Radio-chemistry of Aqueous Solutions (Report No. 2022) 211
[The investigations were carried out at the Laboratoriya radiatsionnoy khimii fiziko-khimicheskogo instituta im. L. Ya. Karpova (Laboratory of Radiation Chemistry of the Physicochemical Institute imeni L. Ya. Karpov) under the direction of M. A. Proskurnin, V. D. Orekhov, Ye. V. Barelko, and A. I. Chernova. The data on oxidation reduction reactions taking place in aqueous solutions under the effect of γ-radiation were obtained from investigations made at the Laboratoriya korrozii i elektrokhimii metallov (Laboratory of Corrosion and Electrochemistry of Metals) under the direction of Ya. M. Kolotyrkin, N. Ya. Bune, and G. S. Tyurikov. The following are mentioned as having made a study of conjugate reactions such as the formation of dyes from leuco bases: V. D. Orekhov, A. A. Zansokhova, L. I. Belen'kiy, T. V. Bromberg, and M. Ye. Kazanskaya.]

Bakh, N. A., V. I. Medvedovskiy, and V. V. Saraeva. Radiolysis and Radiation Oxidation of Organic Compounds (Report No. 2293) 229
[The following are mentioned: N.S. Kolosova and V. F. Tsurikov,

(3/)

RYZHOV, P.A., prof.; BORSHCH-KOMPANEYETS, V.I., kand.tekhn.nauk; MARTYNOV, Yu.I.

Predicting the fractured state of ore bodies in Dzhezkazgan.
Izv.vys.ucheb.zav.; gor.zhur. 7 no.12:21-24 '64.

1. Moskovskiy institut radioelektroniki i gornoy elektromekhaniki. (MIRA 18:2)
Rekomendovana kafedroy marksheyderskogo dela.

MUN, N.P.; BORSHCHEVA, L.I.; IVANENKO, L.I.

Pathogenesis of experimental fatty degeneration of the liver. Akt.vop.pat.pech. no.3:188-196 '65.

(MIRA 18:11)

BORSHCHEVA, N.A.; LAZARENKO, N.P.

Stratigraphy of the sediments of the Kuonamka horizon in the northern part of the Siberian Platform (Cambrian of the Sukhana Depression and the Kuoyka Upland). Inform. sbor. NIIGA no.32: 8-20 '62. (MIRA 16:12)

BORSHCHEVA, N.B.

Bacteriological diagnostics of diphtheria. Lab. delo 5 no.1:46-48 Ja-F '59. (MIRA 12:3)

1. Iz laboratorii (zav. M.A. Sapozhnikova) Gor'kovskoy oblastnoy sanitarno-epidemiologicheskoy stantsii.
(DIPHTHERIA--BACTERIOLOGY)

BORSHCHEVA, T.P.; YEFIMOV, P.I.

Structural control network used in the construction of mine buildings. Sbor. nauch. trud. KGRI 18:89-92 '62.
(MIRA 17:5)

KARASEV, V.Ya.; BORSHCHEVSKAYA, A.I., red.; LEVONEVSKAYA, L.G., tekhn. red.

[My experience in developing cutting tools] Moi opyt sozdaniia rezhushchego instrumenta. [Leningrad] Lenizdat, 1954. 50 p. (Novatory leningradskoi promyshlennosti, no.3). (MIRA 11:10)
(Cutting tools)

ZUYEV, Yu.S.; BORSHCHEVSKAYA, A.F.

[Methods for protecting rubber goods from ozone cracking] Metody zashchity rezinovykh izdelii ot ozonnogo rastreskivaniia. Moskva, 1957. 39 p. (Moscow. Nauchno-issledovatel'skii institut rezinovoi promyshlennosti. Obzory, no 1) '57. (MIRA 11:7)
(Rubber goods)

SOV/20-124-3-34/67

5(4), 15(9)

AUTHORS: Zuyev, Yu. S., Borshchevskaya, A. Z.

TITLE: On the Static Fatigue of Some Deformed Materials in Corrosive Cracking (O dlitel'noy prochnosti nekotorykh deformirovannykh materialov pri ikh korrozionnom rastreskivanii)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 3, pp 613-616 (USSR)

ABSTRACT: Reference is made to earlier papers dealing with this subject. The present paper intends to disclose new cases of the corrosive cracking of rubbers and to determine the influence exercised by the chemical activity of the aggressive agent upon this process. Analysis of experimental results shows that cracking of the various types of rubber occurs whenever distinctly marked destructive processes of the space lattice elements develop in connection with interaction with the aggressive agent. Several photographs show the outer appearance of rubbers after corrosive cracking in various media (nitrogen-oxide, HCl, HNO_3, NaOH, O_3, CH_3COOH). First, the influence exercised by deformation and by the concentration of the aggressive agent upon phenomena occurring before cracking is dealt with. The cracking processes of rubber under

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On the Static Fatigue of Some Deformed Materials in Corrosive Cracking

the influence of various aggressive media are similar to one another. Experimental results also indicate common regularities in corrosive cracking and in the static fatigue of rubbers, metals, and other substances. The next part of the paper deals with the dissociation constant of acids: The reduction of time elapsing until cracking of the samples occurs is undoubtedly a sign that the rate of corrosive cracking increases with an increase of the concentration of the acids. For the purpose of explaining the part played by adsorption, corrosive cracking was investigated also in aqueous solutions of inorganic acids (HCl, HNO_3), in aqueous and alcoholic solutions of fatty acids of the homogeneous series, as well as in vapors of acids. Acceleration of the cracking process can be explained only by increased adsorption of acids on the rubber and by the hereby caused decrease of strength. In conclusion, the relative influence exercised by the concentration of the acids and their adsorption capacity (wetting capacity) is discussed. The rate of corrosive cracking of rubbers depends on the tension and concentration of the aggressive medium, and, besides, on the activity and the adsorption capacity of the aggressor. There are 3 figures,

SOV/20-124-3-34/67

On the Static Fatigue of Some Deformed Materials in Corrosive Cracking

1 table, and 20 references, 17 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry)

PRESENTED: September 26, 1958, by P. A. Rebinder, Academician

SUBMITTED: September 4, 1958

Card 3/3

ACCESSION NR: AP4017642 S/0190/64/006/002/0323/0328

AUTHORS: Zuyev, Yu. S.; Borshchevskaya, A. Z.

TITLE: Dependence of rubber durability upon concentration of a chemically corrosive medium

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 2, 1964, 323-328

TOPIC TAGS: rubber, corrosive medium, polymer hardening, activation energy, rupture, reaction rate, adsorption interaction, stressed state

ABSTRACT: The effect of stress on the threshold concentration P_c has been determined and the relationship $\tau_p = kc^{-\alpha}$ was evaluated (C - concentration of corrosive material, τ_p - breakdown time). For small deformations close to rupture, τ_p decreases with an increase in σ, and for intermediate regions τ_p increases. Under polymer hardening stresses, P_c shifts towards lower concentrations with a rise in stress. In regions of corrosive concentration, where the relationship $\tau_p = kc^{-\alpha}$ is satisfied, the slopes of the straight lines $\lg \tau_p - \lg c$ are independent of the stress (α - constant), and the apparent activation energy becomes independent of the concentration. The chemical interaction between rubber and the corrosive medium is

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ACCESSION NR: AP4017642

represented by $\Pi + qA \rightarrow \Pi A_q$, where r,q - constants, Π - active part of rubber.
$K + rA \rightarrow KA_r$

When τ_p is determined from the rate of growth of cracks, and the latter in turn is proportional to the chemical reaction rate between the polymer and the medium, the coefficient α depends on the absorption interaction (n), the order of the chemical reaction q, and the concentration of the stressed regions of the polymer P. Orig. art. has: 4 formulas and 4 figures.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promy*shlennosti (Institute of Scientific Research in the Rubber Industries)

SUBMITTED: 04Jan63 DATE ACQ: 23Mar64 ENCL: 00

SUB CODE: MT NO REF SOV: 006 OTHER: 001

Card 2/2

L 32959-66 EWP(j)/EWT(m) IJP(c) RM

ACC NR: AP6016908 (A) SOURCE CODE: UR/0138/66/000/001/0023/0028

AUTHOR: Zuyev, Yu. S.; Borshchevskaya, A. Z.

ORG: Scientific Research Institute of the Rubber Industry (Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti)

TITLE: The effect of fillers on the durability of rubber in aggressive media

SOURCE: Kauchuk i rezina, no. 1, 1966, 23-28

TOPIC TAGS: rubber, filler, durability, chemical stability, rupture strength, creep

ABSTRACT: Fillers may have the following effect on the durability of rubber: 1. they may change the number of chemically active centers in the system; 2. they may affect the rate of diffusion of the aggressive medium into the rubber; 3. they may change the stress distribution in a deformed specimen. 4. they may change the relationship between deformation and fatigue. Experiments are performed using various types of rubber, fillers and aggressive media. Results show that in the majority of cases there is no change in the exponential nature of the relationship between the durability of the rubber and stress in an aggressive medium when fillers are added. Nevertheless fillers do have an effect on the parameters of this relationship. When rubber is subjected to the simultaneous action of stress and an aggressive medium, the stress grows while the filler increases the chemical stability and strength of the

Card 1/2 UDC: 678.4.063.678.046:678.019.34

L 32959-66

ACC NR: AP6016908

rubber. The intensity of the relationship between durability and stress due to filling is determined by the ratio between rupture and creep. The sequential arrangement of filled rubber with respect to rupture resistance is correlated with the sequential arrangement of this rubber according to durability, where durability is determined at high stresses. Orig. art. has: 5 figures, 1 table, 1 formula.

SUB CODE: 07/ 11/ SUBM DATE: 26Mar64/ ORIG REF: 007/ OTH REF: 000

Card 2/2

S/190/61/003/002/001/012
B130/B202

AUTHORS: Zuyev, Yu. S., Borshchevskaya, A. Z., Pravednikova, S. I., Wu Yüch-ch'in

TITLE: Temperature effect on the durability of rubber in the case of crazing due to corrosion

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 2, 1961, 164-173

TEXT: The authors studied the corrosion destruction of a vulcanizate produced on the basis of a carboxyl-containing divinyl styrene rubber СКС-30-1 (SKS-30-1) under the action of 1N HCl, 0.24 N CH_3COOH and gaseous HCl (0.82 mmole/mole) and ozone. On corrosion, the vulcanizing agent MgO passes into solution; the reaction kinetics can be inferred from the concentration of Mg^{++} in the solution. It was determined photocolorimetrically with titanium yellow. τ_r, the time passing until the rupture was assumed to be the fundamental characteristics of the process. Deformation ε was kept constant. The specimens were chosen such that they had the same thickness in deformed state. The apparent activation energy u of the effect of HCl

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on the non-deformed rubber specimens was determined from the inclination of the straight line which is obtained when plotting the kinetic curve of the accumulation of Mg^{++} in the coordinates φ; $\sqrt{\tau}$. For ε = const double bands applied to frames were investigated and the mean values were determined from 16-40 experiments. Swelling in HCl is 0.6-1.9% at a temperature of 25-40°C during 2 hr. It was 2.7-14% in acetic acid under equal conditions. The temperature dependence of τ_r for ε = const and σ = const can be expressed by the Arrhenius equation

$\tau_r = Ae^{u/RT_c - \alpha}$. The rate of the reaction between non-deformed rubber and a corroding medium is determined by diffusion. The rate of destruction of a deformed rubber is determined by the rate of the chemical reaction with the medium. The apparent activation energy (u) hardly changes in the region of deformation of 30-80%; it amounts to approximately 20 kcal/mole. On passage to deformation from 500-700%, however, it increases to ~30 kcal/mole. The temperature coefficient of the rupture depends on the type of the destroyed bonds and on the ability of the corroding medium of being adsorbed by rubber. On rupture in a gaseous medium the apparent activation energy is lower than in solutions of the same agent. The time

passing until the rupture of the rubber depends on complex factors. It attains a minimum in the region of critical deformation ε_{kv}. ε_{kv} depends on temperature, on the type of the corrosive agent, and the state (gas, solution) of the medium. Anomalies may occur as a result of the displacement of ε_{kr} in the case of temperature changes. In the case of lower temperatures, the time passing until the rupture may be shorter than in the case of higher temperatures under equal conditions. G. M. Bartenev, S. N. Zhurkov, L. S. Bryukhanova, B. N. Narzulayev are mentioned. There are 11 figures, 1 table, and 15 references: 14 Soviet-bloc and 1 non-Soviet-bloc. The reference to English language publication reads as follows: B. D. Cadle, S. Schadt, J. Amer. Chem. Soc. 74, 6002, 1952; J. Chem. Phys. 21, 163, 1953.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry)

SUBMITTED: June 30, 1960

S/190/61/003/002/001/012
B130/B202

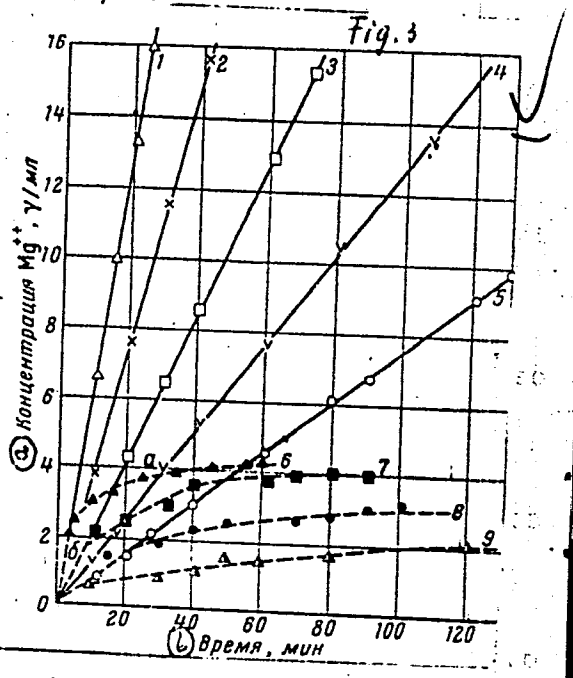

Fig. 3: Change of the concentration of the Mg^{++} ions separated by the vulcanizate in 1N HCl at different temperatures. Non-deformed vulcanizates: dashed lines, deformed vulcanizates: solid lines
Legend: a) concentration, b) time, min

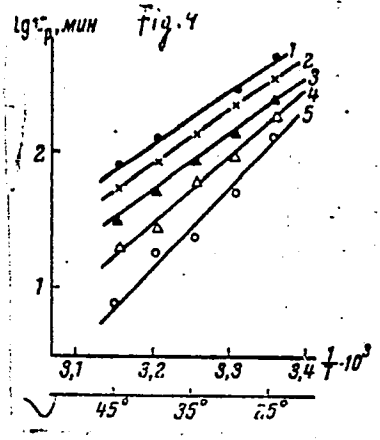

Fig. 4: Temperature dependence of the time passing until the rupture of rubber SKS-30-1 (ε = const) in 1N HCl with deformations (in %): Legend: 1) 30; 2) 40; 3) 60; 4) 500; 5) 725

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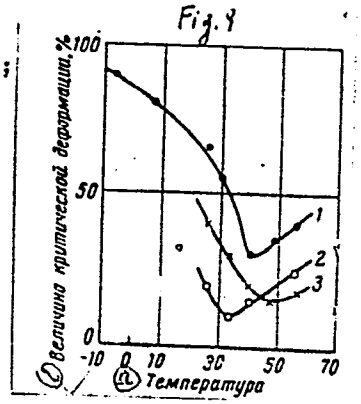
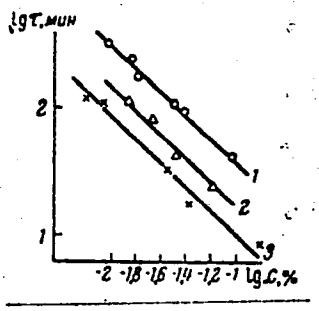
Fig. 9: Temperature dependence of ε_{kv}: 1) nairite; 2) SKS-30 without channel black; 3) SKS-30 with 50 parts by weight of channel black;
Legend: a) temperature; b) deformation



Temperature effect on ...

Fig. 11: Dependence of time passing until the rupture of SKS-31-1 rubber with 40% deformation on the HCl concentration at different temperatures: 1) 45°C; 2) 25°C; 3) 30°C.



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S/020/62/144/004/020/024
B101/B138

AUTHORS: Zuyev, Yu. S., and Borshchevskaya, A. Z.

TITLE: Influence of the concentration of chemically aggressive media on the durability and creep of rubbers

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 4, 1962, 849 - 852

TEXT: The dependence of the breaking time τ_{br} of rubber on the concentration C of the aggressive medium (O_3 or acids) was studied under constant stress σ. Determinations were made of τ_{br}, the creep rate W, the durability D, the relative creep CR and the "concentration threshold" P_c at which the aggressive medium begins to intensify the damage. Results: (1) The curves for $W = W(C)$ and τ_{br} are made up of three sections. In the first section $\tau_{br}(W)$ is constant up to a certain value of C. In the transition section the function is curved and finally $\tau_{br}C^k = \text{const.}$ ($k \sim 1$). (2) W can be expressed as the combined effect of steady fatigue (such as would

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occur in the absence of an aggressive medium) and chemical corrosion. From this it can be deduced that $\tau_{br} W^m$ = const., wherein the exponent m does not depend upon C until C = 0. (3) Plots of log W against ln X and of $\log_{br}$ against log X' are linear ($X = 1 + k_{ch} C^n / W_{st}$; $X' = 1 + \tau_{st} C^k / k'_{ch}$; the index st relates to the steady process and the index ch to the chemical process). (4) P_c may best be determined from the intersection of the two curves $W = W(C)$ and $\tau_{br} = \tau(C)$; P_c being the lowest concentration at which $D = \tau_{st}/\tau_{br}$ and CR become greater than unity. The relation log D = m log CR is valid. (5) For CKC-30-1 (SKS-30-1) vulcanized rubber and nairit, the influence of O_3, acetic acid and hydrochloric acid on the ratio log W_{mean}/W_{st} was studied (Fig. 3). Action of HNO_3 on butyl rubber gave $P_c = 5.6 \cdot 10^{-3}$ mmole/mole and on fluorine-containing rubber of Kel-F type P_c = 4.5 mmole/mole. If, however, C_{HNO_3} is increased to 4 N the

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value of D for butyl rubber increases and D begins to depend on C_{HNO_3}.

(6) There is a continuous transition from steady fatigue of rubber under the effect of stress alone to its destruction under the combined effect of stress and an aggressive medium. There are 4 figures.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry)

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Fig. 3. Influence of C on the relative durability and creep of rubbers at 35°C. (1) SKS-30-1, O_3, σ = 434 kg/cm^2; (2) nairit, O_3, σ = 434 kg/cm^2; (3) SKS-30-1, acetic acid, σ = 91 kg/cm^2; (4) SKS-30-1, hydrochloric acid, σ = 84 kg/cm^2; (5) SKS-30-1 vulcanized with sulfur, hydrochloric acid, σ = 50 kg/cm^2.

ZUYEV, Yu.S.; BORSHCHEVSKAYA, A.Z.

Relation between the destruction and creep of rubber in aggressive media. Kauch. i rez. 24 no.11:10-13 '65. (MIRA 19:1)

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